

# REALLY RAPID RIVETING

*The Chobert System Explained: 1,200 Rivets per Hour*

**M**ETAL construction of aircraft, and particularly the speed with which small components can be joined together, had become a matter of first-rate importance, even before the expansion of the R.A.F. During the expansion, time-saving is even more necessary, and anything which tends to reduce the period required for constructing an aeroplane merits careful consideration.

Such a time-saver appears to be available in the Chobert automatic hand-operated riveter, which uses hollow rivets made of any desired material, and which is no untried "paper scheme," having been thoroughly tested in France over several years. The designer—one might almost say the inventor—is Monsieur Chobert, who has made a speciality of joint-making in metal, and who was, before entering the aeronautical field, a gunsmith accustomed to very accurate workmanship. His experience in that direction is clearly reflected in the "rivet gun" (the expression comes to mind irresistibly), which is a beautifully made piece of mechanism apart from being so simple in operation that, literally, a child can work it.

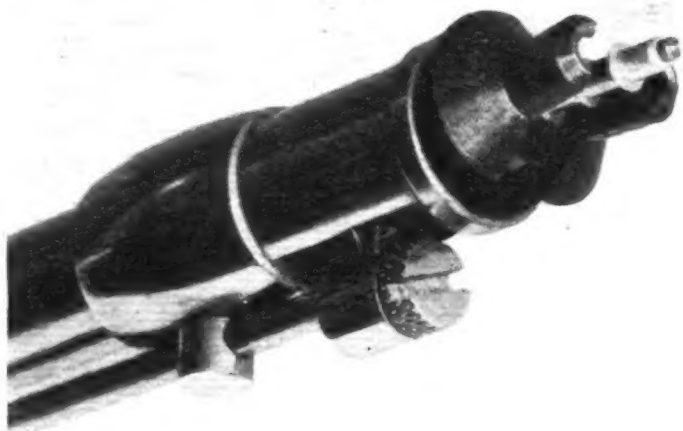
The sole British rights in the Chobert riveting process are held by Aviation Developments, Ltd., Argyle House, of 29-31, Euston Road, London, N.W.1. The rivet gun is not sold, but is hired out to users at a gradually diminishing annual rate; the rivets themselves are sold by the concessionaires.

Before describing the Chobert riveting machine it is necessary to explain the type of rivet used with it. The Chobert rivet is, as already stated, of the tubular type, with an internal lip at the end opposite to the rivet head. When a cone-shaped mandrel is drawn through the rivet it forces the flanged projecting part of the rivet outwards to form a shoulder which bears on the sheet to be riveted, as shown in the diagrams.

## Action of the "Gun"

Regarding the Chobert riveter as a gun, it is necessary to realise that the long pin which carries the rivets, and on the forward end of which the mandrel is formed, is secured to the "stock" of the gun, while the "barrel" is moved forward by a cam operated by handle-driven gears and returned by a strong spring. Thus in operation the rivet pin is stationary, but the barrel moves forwards and backwards; the relative movement of the gun "muzzle" over the mandrel end of the pin is made to perform the riveting operation, and also to feed the next rivet forward into position.

In the sectional view of the rivet gun, the "muzzle" is shown in the position it occupies when the rivet is inserted in the hole previously drilled for it. The mechanism in the "muzzle" of the gun needs a little explanation. It comprises an outer sleeve, locked to the end of the gun barrel, and a two-jaw chuck, split vertically. Inside the chuck is a guide tube for the rivets. During the actual riveting operation, the jaws of this chuck are, of course, kept closed. When the driving handle is rotated in a clockwise direction the cam in

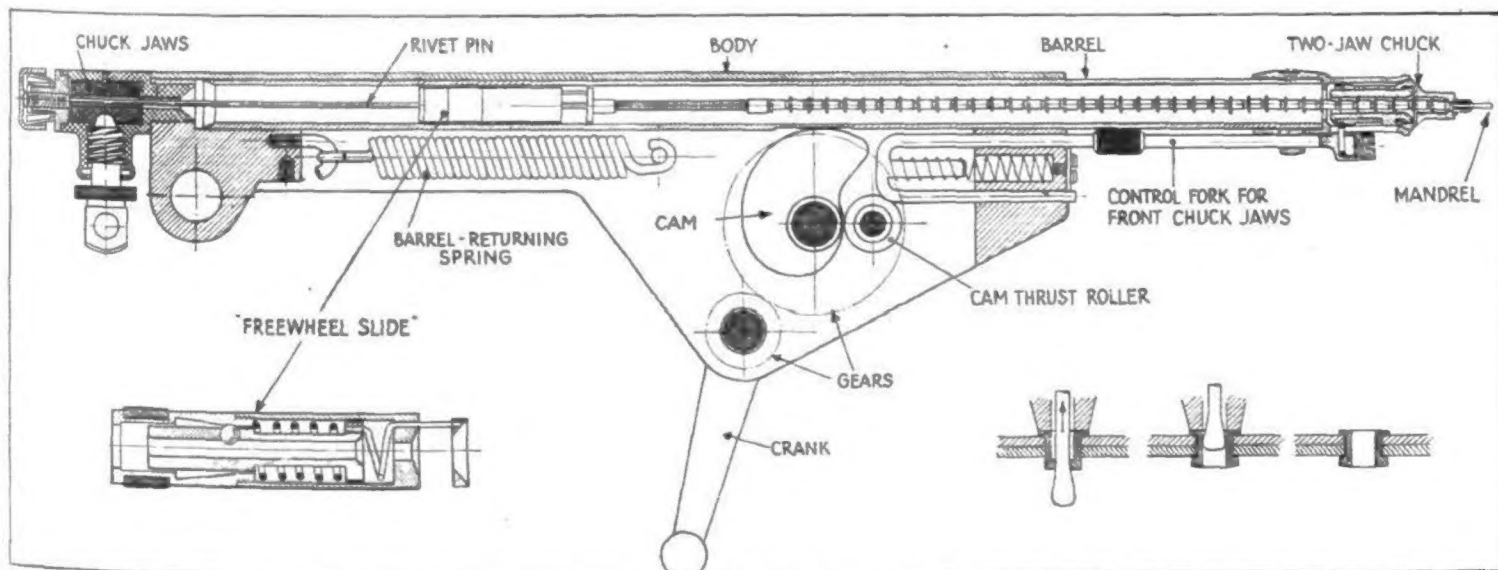


For extracting an empty rivet pin and inserting a loaded pin, the front jaws of the Chobert rivet gun are held open by a catch on the chuck control rod.

the body of the gun is rotated anti-clockwise by means of the gearing. This gearing has a 3 to 1 reduction, so that three complete turns of the handle are required to turn the cam through one revolution.

As the crank is turned the cam causes the barrel to move forward, the rivet being headed as the first turn is completed. Further turning of the handle results in the two-jaw chuck being pushed forward out of its restraining sleeve, and the two jaws open under the action of a "figure of eight" spring, thereby permitting the next rivet to slide forward into position. On completing the third turn of the crank the cam reaches and passes the position of maximum lift, and the strong coil spring returns the barrel to the "in" position, ready for heading the next rivet. At the same time the jaws of the chuck close and withdraw into their sleeve.

The manner in which the rivets are fed along the magazine pin is very ingenious. A tubular slide inside the barrel has a passage through its centre for the pin. The slide consists of an outer and an inner member and incorporates a form of free-wheel arrangement, not unlike that used on bicycles. Movement in one direction frees the ball, while movement in the opposite direction wedges it between two converging surfaces. As rivets are used up at the forward end of the pin the column of rivets is moved forward on the pin by this free-wheel slide, and kept together under constant



Part-sectioned view of the Chobert gun. The inset on the left shows an enlarged view of the slide which feeds the rivets towards the mandrel, and on the right are details of the actual riveting action.